CONTENTS

SECTION A—VOL. XLIII

PAGE

No. 1—January 1956

The Birefringence Patterns of Crystal Spheres . . . . . C. V. Raman 1

Ordinary Linear Differential Equations Involving Random Functions . . . . . P. M. Mathews and S. K. Srinivasan 4

Studies on the Dependence of Optical Activity on Chemical Constitution. Part XLIII. The Rotatory Dispersion of *d*-Camphor-β-sulphonyl-phenyl-, *o*-tolyl-, *m*-tolyl-, *p*-tolyl, α-naphthyl, and-β-naphthyl-amides . . . . . Bawa Kartar Singh, Shiv Mohan Verma and S. R. K. Murty 21

Transition Phenomena at Saturation Temperature . . . . . Vishnu 46

No. 2—February 1956

Virial Problems Related to Simple Wing Profiles . . . B. S. Madhava Rao 53

On the Intensity and Polarisation of the Light from the Sky during Twilight . . . . . J. V. Dave and K. R. Ramanathan 67

Synthetic Experiments in the Benzopyrone Series. Part LVIII. Syntheses of 5 : 7-Dimethoxy-6-hydroxy-Isoflavone and Muningin . . . . . M. L. Dhar and T. R. Seshadri 79

Stochastic Processes Associated with a Symmetric Oscillatory Poisson Process . . . . . Alladi Ramakrishnan and P. M. Mathews 84

The Dipole Moment of Dimethoxy and Diethoxy Aniline . . . . . S. V. Anantakrishnan and D. Sethu Rao 99

Transmission of Ultrasonics through Binary Liquid Mixtures . . . . . M. Krishnamurthi 106

On the Angular Distribution of Penetrating Cosmic-Ray Particles at a Depth 103 MWE Below Ground . . . . . B. V. Sreekantan, S. Naranan and P. V. Ramanamurty 113

" Excited States of C^{12} in the Region 11 to 14 MEV. from B^{11} (d, n) C^{12} Reaction " . . . . . Evani Kondaiah 130

Polarographic Behaviour of Metals in Ethanolamines. Part I. Iron . . . . . R. S. Subrahmanya 133

PAGE

No. 3—March 1956

Search for Physiologically Active Compounds. Part II. Synthesis of 7-Amino and 7-Halo-4-Methyl Coumarins . . . . . N. V. Subba Rao and V. Sundaramurthy 149

X-Ray Diffraction by Binary Liquid Mixtures: Pyridine-Fatty Acid Systems . . . . . B. R. Lakshmanan 152

Infra-Red Investigations on the Hydrocarbon Cyperene—II . . . . . P. T. Narasimhan and Radomir Senich 156

On Two Tauberian Theorems for the Borel Transform of a Sequence . . . . . T. Vijayaraghavan and C. T. Rajagopal 163

Studies in the Formation of Heterocyclic Rings Containing Nitrogen. Part I. Condensation of *o*-Phenylenediamine with Aromatic Aldehydes . . . . . N. V. Subba Rao and C. V. Ratnam 173

Nuclear Disintegrations Produced in Nuclear Emulsions by α-Particles of Great Energy . . . . . M. V. K. Appa Rao, R. R. Daniel and K. A. Neelakantan 181

No. 4—April 1956

Temperature Dependence of Photo-Elastic Constants in Plastics . . . . . S. Bhagavantam and Y. Krishna Murty 203

Raman Spectrum of Magnesite . . . . . D. Krishnamurti 210

Studies on Hexachloroceric Acid. I. Isolation of Hexachloroceric Acid . . . . . S. S. Moosath and M. R. A. Rao 213

Studies on Hexachloroceric Acid. II. Reaction of Hydrated Ceric Oxide with Hydrogen Chloride Gas in Non-Aqueous Solvents . . . . . S. S. Moosath 220

An Application of the Difference-Patterson Method . . . V. Sasisekharan 224

The Configuration of the β-Naphthol Maleic Anhydride Adducts . . . . . N. S. Wariyar 231

On the Steady Laminar Flow of Certain Non-Newtonian Liquids through an Elastic Tube . . . . . M. N. L. Narasimhan 237

On the Phenomenological Theory of Light Propagation in Optically Active Crystals . . . . . S. Pancharatnam 247

PAGE

No. 5—May 1956

Conveyor Belt Method for Studying Short-Lived Activities: Ag^{108}, Ag^{110} and In^{116} . . . . . M. C. Joshi and B. V. Thosar 255

Studies on Hexachloroceric Acid. III. Reaction between Hydrated Ceric Oxide and Hydrogen Chloride Gas in the Absence of Solvents . . . . . S. S. Moosath and M. R. A. Rao 265

Studies on Hexachloroceric Acid. IV. Thermal Decomposition of Hexachloroceric Acid . . . . . S. S. Moosath 272

Spectrophotometric Estimation of Uranium (VI) by Morellin . . . . . B. R. Lakshman Rao and C. C. Patel 276

Studies on the Kinetics of the Decomposition of Murexide in Acid Solutions . . . . . N. A. Ramaiah, S. L. Gupta and Vishnu 286

Polarographic Studies of Murexide—I . . . N. A. Ramaiah and Vishnu 297

The Great Solar Flare of February 23, 1956 and Associated Ionospheric Effects at Ahmedabad . . . . . K. R. Ramanathan, R. V. Bhonsle, K. M. Kotadia and R. G. Rastogi 306

A Solar Flare Type Increase in Cosmic Rays at Low Latitudes . . . . . V. Sarabhai, S. P. Duggal, H. Razdan and T. S. G. Sastry 309

Half-Lives of Short-Lived Activities with a Pulsed Neutron Source and a Ten Channel Time Analyser . . . . . N. Veeraraghavan 319

No. 6—June 1956

The Physics of Crystals . . . . . Sir C. V. Raman 327

On the Intensity and Polarisation of the Light from the Sky during Twilight—Part II. . . . . J. V. Dave 336

Mineralogy of Some Indian Clays . . . . . M. Ramakrishna Rao 359

The Role of Solvent in Chemical Reactions. Part II. The Reaction between Aniline and Methyl Iodide in Different Solvents . . V. S. Padmanabhan 368

Polarographic Behaviour of Metals in Ethanolamines. Part II. Cadmium . . . . . R. S. Subrahmanya 383

Variation with Lunar Phase of Midday Critical Frequencies and Heights of the F2 Layer over Ahmedabad and Other Low Latitude Stations . . . . . K. M. Kotadia and K. R. Ramanathan 394